CLEAR WATER
ENVIRO TECHNOLOGIES

SCALE BLASTER™

SB-250
Installation & Operation Manual

Commercial Electronic Descaler

115/230 VAC (Auto Selected)

For pipe sizes up to: **2" -non-ferrous**

CLEAR WATER
ENVIRO TECHNOLOGIES

SCALEBLASTER™
The Water Softener Alternative

5 YEAR LIMITED WARRANTY

All Commercial ScaleBlaster® electronic descaler products carry a full five (5) years warranty to be free from defects in material and workmanship under normal use from the date of purchase. In the event of malfunction or failure of this product, the purchaser should contact their dealer for service. If dealer is unavailable, contact **Clearwater** direct at **800-756-7946 or 727-562-5186** or by fax **727-562-5187** or by going to their website at **clearwater-enviro.com** to obtain an **RMA** (return merchandise number). Properly package the entire unit and ship it prepaid with a note containing the RMA number, your name, address, phone number (or best way to contact you) along with a brief description of the difficulty you are experiencing with the unit to:

Clearwater Enviro Technologies, Inc., 1166 Kapp Drive, Clearwater, FL 33765

Please be sure to also write the RMA number on the outside of the shipping box.

If the malfunction or failure is a result of defects covered by this warranty, **Clearwater** will repair the product or replace it and return it to the purchaser. After a period of five years, a small labor and parts charge will occur.

This warranty is limited to the original retail purchaser and is not transferable. This warranty does not cover damage due to accidents, abuse, tampering, misuse, fire, lightning damage, power surge, flooding or any catastrophic acts of God.

This warranty does not does not extend to any other electrical or water appliance or device.
In no event shall the manufacturer be liable for damages from improper user installation, nor shall they be liable for already damaged pipe and any consequential damages incurred, whether direct or indirect.

This warranty is limited to repair or replacement and does not include consequential damage or installation expenses and is in lieu of all other warranties express or implied. This warranty gives you specific rights and you may also have other rights, which vary from state to state.

Product Information

A.) Identifying the ScaleBlaster® components

The SB-250 ScaleBlaster unit includes the following components:

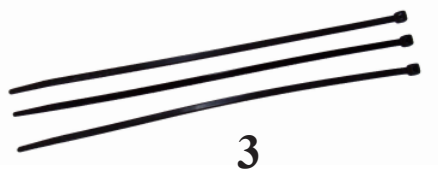
1.) One **SB-250 ScaleBlaster** control box.

2.) **One 55 - foot roll of black 18 gauge signal wire.**

3.) **Three long nylon cable ties.** These ties aid in securing the cable to the pipe.

4.) **Warranty card (along with this Installation & Operations Manual)**

5.) **Shipping Box**. Please save the foam inserts and shipping box, it is made to protect the descaler during transport and is reusable in case the unit needs servicing at the factory.



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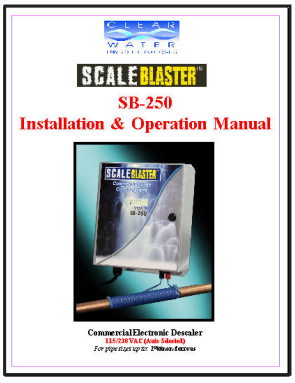

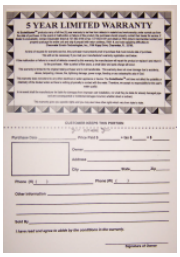

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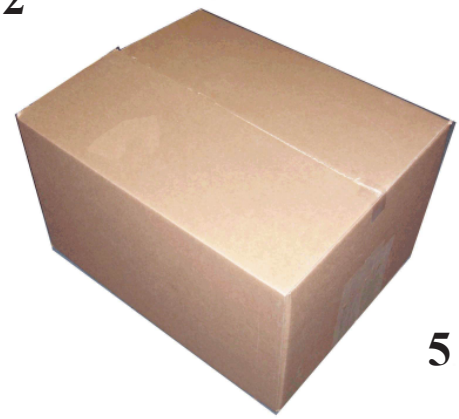

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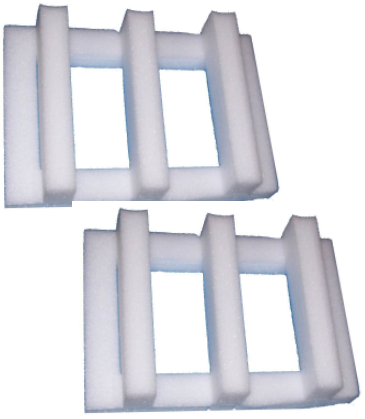


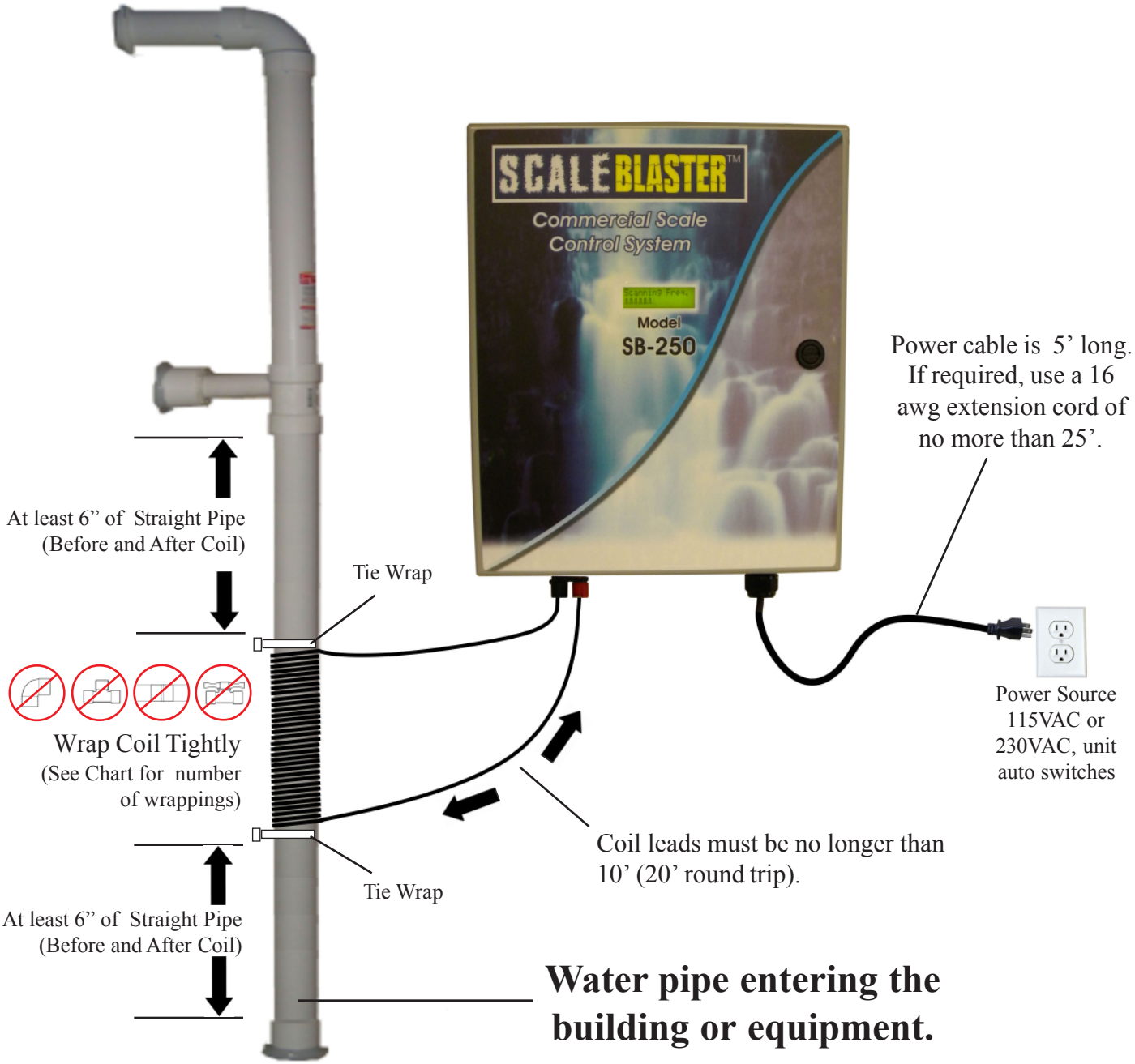
B.) Tools and Materials Required

- Bullet Level
- Drill & Drill Bits
- Flat Screwdriver
- Phillips Screwdriver
- Screws & Anchors
- Utility Knife
- Voltage Meter
- Wire Stripper

C.) Site Survey

Basic overview

Installation of the ScaleBlaster commercial model involves mounting the power box /computer on a wall near an electrical outlet and a signal cable that is wrapped around the incoming water supply line going to the building or equipment (boiler, chiller, laundry, dishwasher, etc.). You will need to locate a section of straight pipe of about 12 inches, and a location to mount the control box that is near an electrical outlet. This signal cable must be within 10 feet of the control box – no matter what.


SCALEBLASTER™
Commercial Scale
Control System
Model
SB-250
Power cable is 5' long. If required, use a 16 awg extension cord of no more than 25'.
At least 6" of Straight Pipe (Before and After Coil)
Tie Wrap
Wrap Coil Tightly
(See Chart for number of wrappings)
Power Source 115VAC or 230VAC, unit auto switches
Coil leads must be no longer than 10' (20' round trip).
Tie Wrap
At least 6" of Straight Pipe (Before and After Coil)
Water pipe entering the building or equipment.

C.) Site Survey (Continued)

Type of Pipe

The ScaleBlaster commercial model SB-250 will work on PVC, PEX or copper pipe up to two (2) **inches** in diameter. If the pipe is galvanized or magnetic pipe, the unit will not penetrate it and will not work. By magnetic pipe, we mean that if you put a magnet on the pipe and it sticks, it is magnetic. The pipe may be stainless steel, or steel and appear to be magnetic, but not magnetic. So please test with a magnet to make sure if there is any doubt. THIS IS EXTREMELY IMPORTANT.

If you only have galvanized or steel pipe to install the unit on, there are two options. You can replace about a foot or so of the pipe with either copper or pvc. If this is not possible, then a much larger ScaleBlaster model will be required to work on this application. Consult your dealer or *Clearwater Enviro* for more details.

Location of the install

The exact location of the install depends on the application. Because ScaleBlaster has nearly 100 various applications, it is impossible to list them all. However, the most desirable place to install the equipment is at the main water supply line going to the building or in front of the equipment. If the system has recycled water, you can also place the equipment on that line. It is best to consult your dealer or *Clearwater Enviro* if you have any questions. Your main goal is to treat 100% of the water as often as possible. The unit should stay on 24 hours a day.

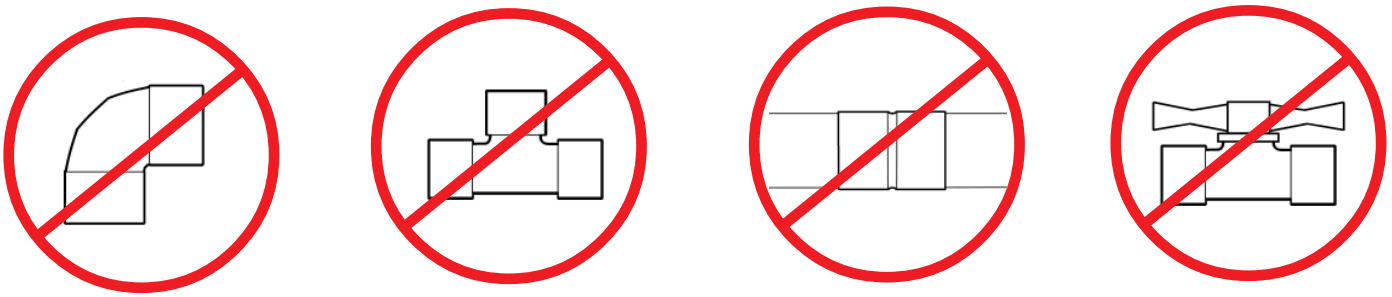
The unit may be installed indoors or outdoors, as the unit is in a weather-proof, UL, CUL and CE listed enclosure. If outdoors, make sure the install area is out of direct sunlight. In extremely hot or cold areas of the world, it may be best to enclose our power box / computer in another box to protect the LCD window and other inside components.

The power unit should be mounted on a wall or solid surface within 5 ½ feet from an electrical outlet, and within ten (10) feet from the pipe in which the signal cable will be wrapped. If the power unit has to be more than 10 feet of where the signal cable will be wrapped, you should contact your dealer or call *Clearwater Enviro* for assistance.

The ScaleBlaster unit has a 115 VAC power plug on the end of the cord. If the electrical outlet is more than 5 ½ feet away from where the power box/ computer is mounted, you can add an UL listed and commercial grade extension cord of up to 25 feet. This is not recommended, but can be done if necessary. If the outlet is 230 VAC, you can simply remove the power plug and wire it to the power source. The unit will automatically adjust to 115 or 230 VAC with no adjustments required to the power box / computer.

Once the main water line (or line in front of the equipment) is located, identify a **SECTION OF STRAIGHT PIPE THAT IS AT LEAST 18 INCHES LONG**, and at least one foot away from any major electrical interference (an electric motor, for example). This straight section must be away from elbows, couplings, tees and valves. Any agitation in the water will make it difficult to properly hit the water with the ScaleBlaster signal. If you locate a section of straight pipe, make sure it is away from the elbows, couplings, etc. as much as possible – but if you have no other options and there are elbows or couplings close by, go ahead and install the equipment.

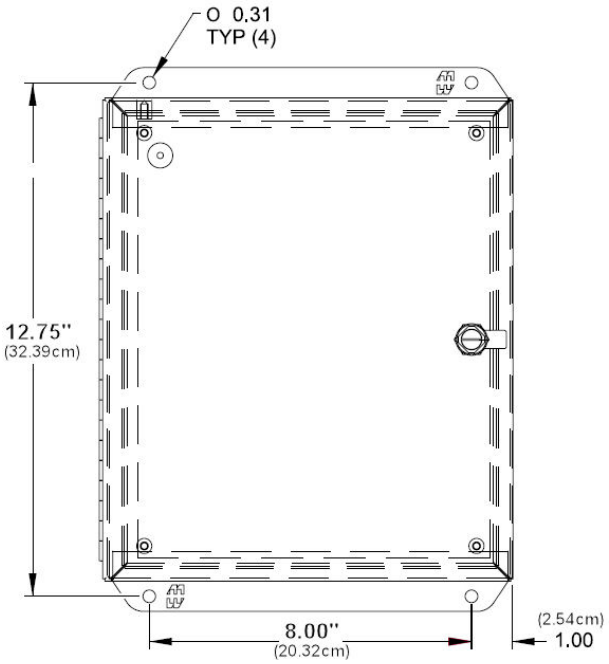
It is better to add an extension cord to the power cable then it is to try and increase the coil leads.

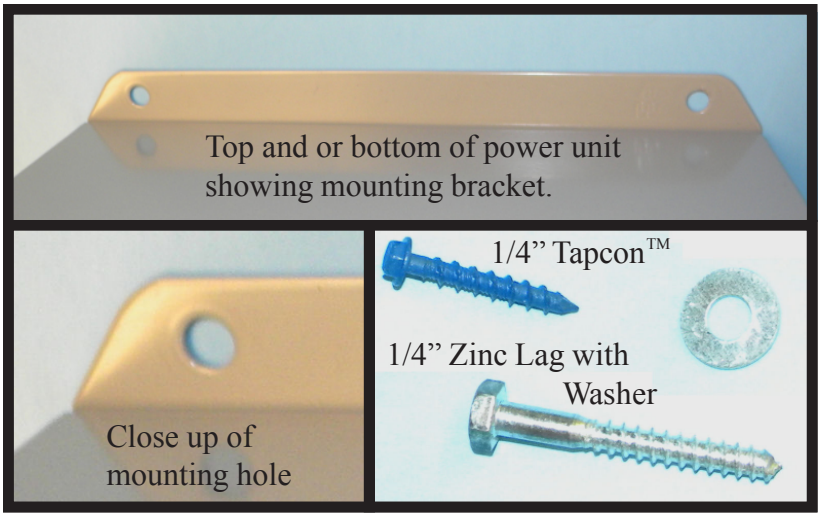


D.) Mounting the Power Box

Mount the power box / computer to the wall after drilling the four holes in the determined location. Use the appropriate screws and anchors (if needed) depending on the surface (wood, stucco, etc.). **This should be within 5 ½ feet of a power source and 10 feet of the location for the signal cable.** If this is not possible, you may add an extension cord to the 115 VAC plug at the end of the power cord.

The unit can be installed indoors or outdoors as long as it is **out of direct sunlight**. The unit will work on either 115 VAC or 230 VAC with no adjustments. You can either plug the unit in a 115 VAC power outlet, or wire it directly into a 230 VAC source by removing the power plug. We strongly recommended a licensed electrician if wiring to 230 VAC.





E.) Installing the Signal Cable

This model is designed specifically for commercial use, and will not work on galvanized or magnetic pipe. You may need to replace a small section of pipe where the signal cable is to be installed if it is a ferrous based pipe. You can replace it with copper or pvc pipe. There is no need to replace the galvanized pipe downstream, as the ScaleBlaster will descale the pipes from that point forward (from the location of where the signal cable is wrapped).

The SB-250 is equipped with a roll of 55 feet signal cable. The maximum pipe size the unit will work on is two inches. The signal cable is an 18 gauge wire, black in color.

1.) Carefully strip off 2" (51mm) of the outer rubber shield from one of the ends of the signal cable. Tighten the bare wires together to get rid of any stray strands.
2.) Unscrew one of the two receptacle posts located on the ScaleBlaster power box / computer. It **does not** matter if you use the red or black receptacle first.
3.) Then insert the spliced wires of the signal cable end completely through the opening. Tighten the receptacle post as much as possible.

Continued on next page.

E.) Installing the Signal Cable (Continued)

4.) It is very important you have a tight connection and that all wire threads go through the opening in the receptacle.
5.) Route the signal cable from the control box to the inlet pipe. Hold the cable parallel and against the pipe and then secure the cable to the pipe with one of the nylon cables ties. Make sure the tie is pulled tightly so that the cable is well attached to the pipe. Remove excess cable tie with scissors.
6.) Using finger pressure to keep the signal cable and tie from moving, begin wrapping the signal cable securely around the pipe in any direction. The correct number of wraps depends on pipe size and composition.

IT IS IMPERATIVE TO WRAP THE COIL THE CORRECT NUMBER OF TIMES. PLEASE SEE CHART BELOW FOR CORRECT NUMBER OF WRAPS.

Coil Wrapping Chart - Material vs Pipe Size

	Copper	PVC / PEX
3/4"	60 Wraps	50 Wraps
1"	60 Wraps	50 Wraps
1 1/4"	50 Wraps	45 Wraps
1 1/2"	40 Wraps	40 Wraps
2"	40 Wraps	40 Wraps

JUST BECAUSE YOU HAVE EXTRA WIRE, DOES NOT MEAN YOU HAVE TO USE IT! DO NOT OVERWRAP THE COILS MORE THAN THE RECOMMENDED NUMBER. DO NOT UNDERWRAP THE AMOUNT OF COILS SUGGESTED. Overwrapping can significantly decrease the power of the signal. If you are unable to obtain 50 wraps due to straight pipe issues of not giving you enough space, the minimum number of wraps the unit requires is at least 30 wraps.

MAKE SURE THE WRAPS ARE FLUSH AGAINST ONE ANOTHER – NEVER OVERLAPPING.

THIS IS EXTREMELY IMPORTANT.

AS PREVIOUSLY NOTED, MAKE SURE THE CONTROL BOX IS MOUNTED AS CLOSE AS POSSIBLE TO WHERE THE SIGNAL CALBE IS WRAPPED ON THE PIPE. THE MAXIUM DISTANCE SHOULD NOT BE MORE THAN 10 FEET.

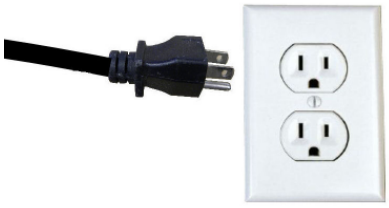
7.) Once the wrapping is complete, secure the signal cable to the pipe, using another enclosed cable tie. Remove the excess cable tie with scissors or cutters.
8.) Route the loose end of the signal cable back to the control box. Trim the cable wire to length, getting rid of any excess wire. You want to get the wire from the pipe to the power box / computer as taut as possible.

DO NOT ALLOW THE WIRES GOING TO THE CONTROL BOX - TO AND FROM THE WRAPPED COIL - TO OVERLAP OR TOUCH EACH OTHER

9.) Carefully strip the outer plastic shield from the other end of the signal cable, leaving about two inches of bare cable. Twist the bare cable and insert the end into the unused receptacle post (either red or black). Tighten the receptacle post. Again, make sure all threads have passed through the opening for a 100% connection.

F.) Powering up the Control Box / Computer

1.) The unit will work automatically on either 115 or 230 VAC, however the unit has a 115 VAC power plug on the end. You may simply plug this into a 115VAC outlet. Since electrical outlets vary worldwide, or if you need 230VAC, the power cord plug may not match your outlet type. In this case, it must be replaced with the proper plug by a licensed electrician.



2.) Plug the power cord into the outlet.

3.) The unit should stay on 24 hours a day.

4.) Monitor the LCD screen from time to time to be sure of continuous operation.

G.) LCD Indicator Screen

When the unit is operating normally it will show the screen below.

OPERATIONAL

If there is an error (or the coil just isn't yet attached) the screen below will appear. If the coil is connected and the message below is present, then contact your dealer or Clearwater Enviro for help.

ERROR
MODE

Manufactured by

CLEAR WATER
ENVIRO TECHNOLOGIES

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